September 26, 2014

CAPT Jeff Church, REHS, CSP, CIH
Senior Program Manager, Environmental,
Health, and Safety Services
Federal Occupational Health (FOH)
Program Support Center
U.S. Department of Health and Human Services
4550 Montgomery Avenue, Suite 950
Bethesda, MD 20814

via e-mail: Jeffrey.Church@foh.hhs.gov

Re: Indoor Air Quality (IAQ) Assessment Services Report
Environmental Protection Agency (EPA) Potomac Yard (North) Building – 5th Floor
2733 Crystal Drive, Arlington, VA 22202
Tidewater Project No.: 5379-005

Dear CAPT Church:

On August 27, 2014, Tidewater, Inc. (Tidewater), represented by Industrial Hygienist, Mr. Jason M. Gauthier, performed an Indoor Air Quality (IAQ) assessment survey in select areas of the 5th Floor of the EPA Potomac Yard (North) building located at 2733 Crystal Drive in Arlington, Virginia. This assessment was conducted at the request of Federal Occupational Health (FOH) in response to IAQ complaints made by multiple tenant employees working on the 5th Floor of the building. These complaints included adverse health effects the employees attributed to the recent release of "Garden Safe Houseplant & Garden Insect Killer", a household pesticide containing Pyrethrum and Piperonyl Butoxide, within Office 5722. The pesticide was reportedly released within Office 5722 on July 3, 2014.

At the request of FOH, Tidewater performed an IAQ assessment on the 5th Floor of the building to document prevalent IAQ conditions. The Scope of Work (SOW) for the IAQ assessment, as approved by FOH, included the following:

- The collection of temperature, relative humidity, carbon dioxide (CO_2), and carbon monoxide (CO) measurements using a direct read instrument in the incident office (Office 5722) and surrounding areas;
- The collection of Total Volatile Organic Compounds (TVOCs) measurements using a direct read instrument in the incident office (Office 5722) and surrounding areas;
- The collection of nine (9) air samples for laboratory analysis for Pyrethrins and Piperonyl Butoxide in the incident office (Office 5722), surrounding complaint areas, and non-complaint areas to establish typical background levels for these compounds; and
- The collection of nine (9) wipe samples for laboratory analysis for Pyrethrins and Piperonyl Butoxide residues from high contact surfaces in the incident office (Office 5722), surrounding complaint areas, and non-complaint areas to establish typical background residue levels for these compounds.

Tidewater was authorized to conduct this IAQ assessment via the acceptance of TI2E's proposed SOW and cost estimate, dated August 26, 2014, by CAPT Church. Tidewater was verbally authorized by Mr. Daniel Fielden, Contractor Industrial Hygienist for the USEPA/OARM/OA/SHEMD, to conduct this assessment on August 27, 2014. Tidewaters' industrial hygienist was accompanied by Mr. Fielden throughout the duration of this assessment.

Visual Observations

Tidewater's investigation included a visual inspection of the incident office (Office 5722), surrounding complaint areas (Suite 5720, Office 5741, Conference Room 5771, Suite 5780, and Office 5782), and non-complaint areas (Pantry 5500, Pantry 5400, and Conference Room 4840) for indications of general indoor air quality problems. The results of Tidewater's observations are as follows:

- Building materials observed on the affected areas generally consisted of gypsum wallboard walls, suspended ceiling tile grid systems, and carpeted floors. Gypsum board ceilings were also observed in a few discreet locations. The perimeter walls contained large windows. The floors were generally accessed via a central elevator lobby.
- The tenant occupied spaces were generally observed to include open work stations/cubicle work areas, offices, conference rooms, and centrally located pantries/break areas and service center areas (printers, copies, etc.) Building mechanical spaces and restroom facilities were located in the central core area.
- Ceiling-mounted air exchange registers located throughout the tenant spaces were observed to be generally clean with only minor accumulations of dust.
- Tidewater observed the tenant occupied spaces to be generally clean and well maintained. No industrial chemicals or waste storage areas were observed within the tenant spaces.
- Tidewater did not observe any evidence of suspect microbial growth, active water intrusion, or standing water within the tenant spaces.
- Tidewater did not detect any unusual odors emanating from any of the areas assessed during this survey.

Air Quality Measurements

During the assessment, Tidewater recorded temperature, relative humidity, carbon dioxide (CO_2), and carbon monoxide (CO) measurements within the incident office, surrounding complaint areas, and non-complaint areas using a MetroSonics aq-5000 IAQ monitor (Serial Number 2157, Factory Calibrated May 9, 2014.) Measurements of TVOCs were also recorded within these areas using a MiniRAE 2000 direct read Photo Ionization Detector (PID) (Serial Number 110-002160, Factory Calibrated July 29, 2014.)

Measurements were recorded after allowing the devices to become acclimated to the ambient temperature and relative humidity for five (5) minutes. Background/ambient readings were obtained from the exterior of the building (4th Floor Patio/Green Roof area) for comparative analysis. Readings were recorded between approximately 1400 PM and 1429 PM.

The recorded IAQ readings are summarized in Table 1 below.

TABLE 1: IAQ Assessments Air Testing Results
EPA Potomac Yard (North) – 5th Floor
August 27, 2014

Location	Temperature (°F)	Relative Humidity (%)	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)	Total VOCs (ppm)
Office 5722 (Incident Office)	**71.7**	55.3	0.0	640	0.5
Suite 5720 (Impacted Suite)	**72.2**	54.9	0.0	716	0.3
Office 5741 (Impacted Individual)	**72.5**	54.1	0.0	656	0.0
Conference Room 5771 (Impacted Individuals)	**72.1**	53.0	0.0	669	0.0
Suite 5780 (Impacted Suite)	**70.6**	53.2	0.0	668	0.0
Office 5782 (Impacted Individuals)	**71.5**	53.7	0.0	637	0.0
Pantry 5500 (Non-complaint Area, same HVAC zone as Incident Office)	**71.6**	55.4	0.0	750	0.0
Pantry 5400 (Non-complaint Area, different HVAC zone than Incident Office)	**71.9**	55.3	0.0	729	0.0
Conference Room 4840 (Un-impacted Area)	**72.0**	50.0	0.0	813	0.0
4th Floor Patio/Green Roof (Outside/Ambient)	83.5	51.7	0.0	545	0.0

Temperature

According to the American Society for Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE) guidelines Standard 55 – 2010, the temperature range in summer/ transitional season should be maintained between 73°F and 79°F for maximum occupant comfort. The ASHRAE guideline for temperature for winter/ transitional season is between 68.0°F and 74.5°F.

Temperature readings recorded in the assessed areas ranged from 70.6°F to 72.5°F, compared with an outside temperature of 83.5°F. All of the interior readings were marginally below the ASHRAE recommended comfort range for the summer/transitional season. Tidewater does not believe the temperature readings being recorded marginally below the ASHRAE recommended comfort range to be an indication of adverse IAQ within the building, or to be a contributing factor to the incident complaints.

Relative Humidity

Per ASHRAE Standard 62.1 – 2010, a maximum recommended relative humidity level of 65% is recommended to reduce the likelihood of condensation on cold surfaces and potential microbial growth. The ideal comfortable relative humidity range has been reported as 40% to 60%, as long as building materials or contents are not adversely affected. OSHA recommends humidity control within a 20% to 60% range in their technical manual for indoor air quality investigations.

Measurements of relative humidity recorded in the assessed areas ranged from 50.0% to 55.4%, compared with 51.7% outside the building. All of the interior readings were within the ASHRAE and OSHA recommended ranges.

Carbon Dioxide

ASHRAE Standard 62.1 – 2010 recommends that indoor CO_2 levels not exceed 700 parts per million (ppm) of CO_2 in excess of the outside air concentration. At a differential higher than 700 ppm, 80% of un-adapted individuals (visitors) would find air quality unacceptable (based upon non-specific contaminants, such as body odor and other bio-effluents.) This level should be used as a guideline that helps maximize comfort for all occupants.

Carbon dioxide readings recorded in the assessed areas ranged from 637 ppm to 813 ppm, compared with an outside reading of 545 ppm. All of the interior carbon dioxide readings were within the ASHRAE recommended guideline.

Carbon Monoxide

The OSHA permissible exposure limit for CO is 50 ppm for an eight-hour permissible exposure limit. OSHA has proposed a time-weighted average exposure limit of 35 ppm, a ceiling level of 200 ppm, and an Immediately Dangerous to Life and Health (IDLH) level of 1,200 ppm. The Indoor Air Quality Association guideline for CO in an occupied indoor environment is 9 ppm.

All recorded CO concentrations collected during this assessment were 0.0 ppm. These measurements indicate that CO concentrations within the building are within acceptable limits.

Total Volatile Organic Compounds

Although no recommended guidelines for airborne concentrations of total VOC's currently exist, guidelines for individual constituents do exist. The American Conference of Governmental Industrial Hygienists (ACGIH) has established a Threshold Limit Value (TLV) for total diesel hydrocarbons of 15 ppm for diesel vapor exposure, measured as an 8-hour time-weighted average (TWA).

Recorded TVOC concentrations collected during this assessment ranged from 0.0 ppm to 0.5 ppm. These measurements indicate that TVOC concentrations within the building are within acceptable limits.

Pyrethrins and Piperonyl Butoxide Air Sampling

Tidewater collected a total of nine (9) air samples from representative building areas for laboratory analysis for Pyrethrins and Piperonyl Butoxide during this assessment. One (1) field blank sample was also submitted to the laboratory for Quality Assurance/ Quality Control (QA/QC) purposes. The samples were collected between approximately 1226 PM and 1502 PM. The sample locations and corresponding sample identifications are delineated below:

- Sample 082714-A01 – Office 5722 (Incident Office);
- Sample 082714-A02 – Suite 5720 (Impacted Suite);
- Sample 082714-A03 – Office 5741 (Impacted Individual);
- Sample 082714-A04 – Conference Room 5771 (Impacted Individuals);
- Sample 082714-A05 – Suite 5780 (Impacted Suite);
- Sample 082714-A06 – Office 5782 (Impacted Individuals);
- Sample 082714-A07 – Pantry 5500 (Non-complaint Area, same HVAC zone as Incident Office);
- Sample 082714-A08 – Pantry 5400 (Non-complaint Area, different HVAC zone than Incident Office);
- Sample 082714-A09 – Conference Room 4840 (Un-impacted Area); and
- Sample 082714-A10 – Field Blank.

Each sample was collected on a quartz filter (XAD-2 OVS) within a solid sorbent tube (SKC 226-58) using a dedicated Gillian BDXII air collection pump operating at a flow rate of 1.0 liter per minute (L/min.) The samples collected in the assessed areas had run times ranging from 123 minutes to 137 minutes for total volumes ranging from 123 liters to 137 liters of air. The sample media was stored in a transport cooler with an ice pack prior to the sampling event and during shipment to the laboratory. The samples were submitted for analysis to ALS Environmental (ALS), an AIHA-accredited analytical laboratory located in Salt Lake City, Utah, following rigorous chain of custody guidelines. The samples were analyzed for Pyrethrins and Piperonyl Butoxide via Gas Chromatography in accordance with modified NIOSH 5605 methodology.

For evaluation purposes, the sample results were compared to the current OSHA PEL, ACGIH TLV, and/or NIOSH REL (if available.) Established exposure limits for Pyrethrins include a PEL, TLV, and REL of 5 milligrams per cubic meter (mg/m^3.) No occupational exposure limits have been established for Piperonyl Butoxide at this time; however, reference to an arbitrary limit of

10 mg/m^3 was included on OSHA's sampling and analytical methods webpage for this compound.

Analysis of the air samples collected in the assessed areas indicated concentrations of Piperonyl Butoxide ranging from less than 0.0036 mg/m^3 to less than 0.0041 mg/m^3. Analysis of the field blank sample indicated a concentration of less than 0.50 micrograms per sample (µg/sample.) All of these results were below the arbitrary exposure limit for this compound, as well as below the laboratory's limit of detection for the analytical method.

A copy of the analytical reports, including Chain of Custody Forms, is included as Attachment A. A site diagram indicating sampling locations is included as Attachment B.

Pyrethrins and Piperonyl Butoxide Residues Wipe Sampling

Tidewater collected a total of nine (9) wipe samples from representative building areas for laboratory analysis for Pyrethrins and Piperonyl Butoxide residues during this assessment. The samples were generally collected from a desk top, conference table, or other horizontal surface with high contact potential in the assessed areas. One (1) field blank sample was also submitted to the laboratory for QA/QC purposes. The sample locations and corresponding sample identifications are delineated below:

- Sample 082714-W01 – Office 5722 (Incident Office), Desk;
- Sample 082714-W02 – Suite 5720 (Impacted Suite), Desk;
- Sample 082714-W03 – Office 5741 (Impacted Individual), Desk;
- Sample 082714-W04 – Conference Room 5771, Table (Impacted Individuals);
- Sample 082714-W05 – Suite 5780 (Impacted Suite), Desk;
- Sample 082714-W06 – Office 5782 (Impacted Individuals), Desk;
- Sample 082714-W07– Pantry 5500, Table (Non-complaint Area, same HVAC zone as Incident Office);
- Sample 082714-W08 – Pantry 5400, Counter (Non-complaint Area, different HVAC zone than Incident Office);
- Sample 082714-W09 – Conference Room 4840, Table (Un-impacted Area); and
- Sample 082714-W10 – Field Blank.

Each sample was collected using a laboratory-provided sterile cotton gauze pad moistened prior to the sample collection with isopropyl alcohol. An approximate two inch by two inch (2" x 2") area was wiped at each sample location for a total sampled area of four square inches (4 in^2.) The wipe samples were collected after recording the air quality measurements and collecting the air samples at each location.

The sample media was stored in a transport cooler with an ice pack prior to the sampling event and during shipment to the laboratory. The samples were submitted for analysis to ALS Environmental, an AIHA-accredited analytical laboratory located in Salt Lake City, Utah, following rigorous chain of custody guidelines. The samples were analyzed for Pyrethrins and Piperonyl Butoxide via Gas Chromatography in accordance with modified NIOSH 5605 methodology.

Regulatory limits for concentrations of Pyrethrins and Piperonyl Butoxide residues on contact surfaces do not appear to have been established at this time.

Analysis of all wipe samples collected indicated that concentrations of Pyrethrins and Piperonyl Butoxide residues in all samples were less than 0.50 micrograms per sample (µg/sample.) All of these results were below the laboratory's limit of detection for the analytical method, indicating no detectable concentrations of Pyrethrin and Piperonyl Butoxide residues remained on the sampled surfaces.

A copy of the analytical report, including Chain of Custody, is included as Attachment A. A site diagram indicating sampling locations is included as Attachment B.

Conclusions and Recommendations

Based on the results of the visual inspection and the measurements of air quality parameters, Tidewater offers the following conclusions and recommendations:

- Tidewater's observations of the incident office, surrounding complaint areas, and non-complaint areas during this assessment did not reveal any readily observable indications of general indoor air quality problems.
- Temperature measurements recorded in the assessed areas were all marginally below the ASHRAE recommended comfort range for the summer/transitional season. Tidewater does not believe these temperature readings are an indication of adverse IAQ within the building, or are likely to be a contributing factor to the incident complaints.
- Air quality measurements recorded by Tidewater during the assessment indicated relative humidity, carbon dioxide, carbon monoxide, and TVOC levels within the assessed areas were within regulatory and recommended guidelines.
- Analytical results for the Pyrethrins air samples were all below the established exposure limits, as well as below the laboratory's limit of detection for the analytical method.
- Analytical results for the Piperonyl Butoxide air samples were all below the arbitrary exposure limit for this compound, as well as below the laboratory's limit of detection for the analytical method.
- Analytical results for the Pyrethrins and Piperonyl Butoxide residues wipe samples were all below the laboratory's limit of detection for the analytical method, indicating no detectable concentrations of Pyrethrins and Piperonyl Butoxide residues remained on the sampled surfaces.

Based on these conclusions, Tidewater does recommend that the HVAC system serving the complaint area be adjusted, if feasible, to maintain temperatures within the recommended ASHRAE comfort ranges throughout the year.

Qualifications

Tidewater has endeavored to assess existing conditions in select areas of the 5th Floor of the EPA Potomac Yard (North) building, located at 2733 Crystal Drive in Arlington, Virginia, as they pertain to IAQ complaints related to the release of "Garden Safe Houseplant & Garden Insect Killer", a household pesticide containing Pyrethrum and Piperonyl Butoxide, within Office 5722 on July 3, 2014. Regardless of the thoroughness of our investigation, it is possible that some contributing factor has been overlooked or that circumstances have changed without our knowledge. Our results are based on the observations made on the day of our assessment,

analytical laboratory data representative of the time samples were collected, and information provided by FOH. Actual conditions vary from day to day throughout the year.

Tidewater appreciates the opportunity to provide consulting services for Federal Occupational Health on this matter. Please contact us should any questions arise concerning this report or if we may be of further assistance.

Sincerely,
Tidewater, Inc.

Jason M. Gauthier
Project Manager

Jonathan N. Schatz, MS, CES, CEI
Manager, IH Services

Skanda Abeyesekere, MS, CIH, CSP
Certified Industrial Hygienist

JMG/JNS/SA

Attachments: Attachment A – Analytical Laboratory Report and Chain of Custody
Attachment B – Sample Locations Diagram

Attachment A

Analytical Laboratory Report and Chain of Custody

ANALYTICAL REPORT

Report Date: September 11, 2014

Jonathan N. Schatz
Tidewater, Inc
6625 Selnick Drive
Suite A
Elkridge, MD 21075

Phone: 410-997-4458
Fax: 410-997-8713
E-mail: jonathan.schatz@tideh2o.net

Workorder: **34-1424123**
Client Project ID: 082714-FOH 082814
Purchase Order: 082714-FOH
Project Manager: Jessica Helland

Analytical Results

Sample ID: **082714-A01** Collected: 08/27/2014
Lab ID: 1424123001 Sampling Location: 082714-FOH Received: 08/28/2014

Method: NIOSH 5605 **Media:** SKC 226-58, Sorbent Tube, XAD-2 OVS, Quartz Filter **Analyzed:** 09/10/2014
Sampling Parameter: Air Volume 123 L

Analyte	ug/sample	mg/m³	RL (ug/sample)
Piperonyl butoxide	<0.50	<0.0041	0.50
Pyrethrum	<0.50	<0.0041	0.50

Sample ID: **082714-A02** Collected: 08/27/2014
Lab ID: 1424123002 Sampling Location: 082714-FOH Received: 08/28/2014

Method: NIOSH 5605 **Media:** SKC 226-58, Sorbent Tube, XAD-2 OVS, Quartz Filter **Analyzed:** 09/10/2014
Sampling Parameter: Air Volume 126 L

Analyte	ug/sample	mg/m³	RL (ug/sample)
Piperonyl butoxide	<0.50	<0.0040	0.50
Pyrethrum	<0.50	<0.0040	0.50

Sample ID: **082714-A03** Collected: 08/27/2014
Lab ID: 1424123003 Sampling Location: 082714-FOH Received: 08/28/2014

Method: NIOSH 5605 **Media:** SKC 226-58, Sorbent Tube, XAD-2 OVS, Quartz Filter **Analyzed:** 09/10/2014
Sampling Parameter: Air Volume 128 L

Analyte	ug/sample	mg/m³	RL (ug/sample)
Piperonyl butoxide	<0.50	<0.0039	0.50
Pyrethrum	<0.50	<0.0039	0.50

ANALYTICAL REPORT

Workorder: **34-1424123**
Client Project ID: 082714-FOH 082814
Purchase Order: 082714-FOH
Project Manager: Jessica Helland

Analytical Results

Sample ID: **082714-A04** Collected: 08/27/2014
Lab ID: 1424123004 Sampling Location: 082714-FOH Received: 08/28/2014

Method: NIOSH 5605 **Media:** SKC 226-58, Sorbent Tube, XAD-2 OVS, Quartz Filter **Analyzed:** 09/10/2014
Sampling Parameter: Air Volume 129 L

Analyte	ug/sample	mg/m³	RL (ug/sample)
Piperonyl butoxide	<0.50	<0.0039	0.50
Pyrethrum	<0.50	<0.0039	0.50

Sample ID: **082714-A05** Collected: 08/27/2014
Lab ID: 1424123005 Sampling Location: 082714-FOH Received: 08/28/2014

Method: NIOSH 5605 **Media:** SKC 226-58, Sorbent Tube, XAD-2 OVS, Quartz Filter **Analyzed:** 09/10/2014
Sampling Parameter: Air Volume 129 L

Analyte	ug/sample	mg/m³	RL (ug/sample)
Piperonyl butoxide	<0.50	<0.0039	0.50
Pyrethrum	<0.50	<0.0039	0.50

Sample ID: **082714-A06** Collected: 08/27/2014
Lab ID: 1424123006 Sampling Location: 082714-FOH Received: 08/28/2014

Method: NIOSH 5605 **Media:** SKC 226-58, Sorbent Tube, XAD-2 OVS, Quartz Filter **Analyzed:** 09/10/2014
Sampling Parameter: Air Volume 128 L

Analyte	ug/sample	mg/m³	RL (ug/sample)
Piperonyl butoxide	<0.50	<0.0039	0.50
Pyrethrum	<0.50	<0.0039	0.50

Sample ID: **082714-A07** Collected: 08/27/2014
Lab ID: 1424123007 Sampling Location: 082714-FOH Received: 08/28/2014

Method: NIOSH 5605 **Media:** SKC 226-58, Sorbent Tube, XAD-2 OVS, Quartz Filter **Analyzed:** 09/10/2014
Sampling Parameter: Air Volume 134 L

Analyte	ug/sample	mg/m³	RL (ug/sample)
Piperonyl butoxide	<0.50	<0.0037	0.50
Pyrethrum	<0.50	<0.0037	0.50

Sample ID: **082714-A08** Collected: 08/27/2014
Lab ID: 1424123008 Sampling Location: 082714-FOH Received: 08/28/2014

Method: NIOSH 5605 **Media:** SKC 226-58, Sorbent Tube, XAD-2 OVS, Quartz Filter **Analyzed:** 09/10/2014
Sampling Parameter: Air Volume 135 L

Analyte	ug/sample	mg/m³	RL (ug/sample)
Piperonyl butoxide	<0.50	<0.0037	0.50

Results Continued on Next Page

ANALYTICAL REPORT

Workorder: **34-1424123**
Client Project ID: 082714-FOH 082814
Purchase Order: 082714-FOH
Project Manager: Jessica Helland

Analytical Results

Sample ID: **082714-A08** Collected: 08/27/2014
Lab ID: 1424123008 Sampling Location: 082714-FOH Received: 08/28/2014

Method: NIOSH 5605 **Media:** SKC 226-58, Sorbent Tube, XAD-2 OVS, Quartz Filter **Analyzed:** 09/10/2014
Sampling Parameter: Air Volume 135 L

Analyte	ug/sample	mg/m³	RL (ug/sample)
Pyrethrum	<0.50	<0.0037	0.50

Sample ID: **082714-A09** Collected: 08/27/2014
Lab ID: 1424123009 Sampling Location: 082714-FOH Received: 08/28/2014

Method: NIOSH 5605 **Media:** SKC 226-58, Sorbent Tube, XAD-2 OVS, Quartz Filter **Analyzed:** 09/10/2014
Sampling Parameter: Air Volume 137 L

Analyte	ug/sample	mg/m³	RL (ug/sample)
Piperonyl butoxide	<0.50	<0.0036	0.50
Pyrethrum	<0.50	<0.0036	0.50

Sample ID: **082714-A10** Collected: 08/27/2014
Lab ID: 1424123010 Sampling Location: 082714-FOH Received: 08/28/2014

Method: NIOSH 5605 **Media:** SKC 226-58, Sorbent Tube, XAD-2 OVS, Quartz Filter **Analyzed:** 09/10/2014
Sampling Parameter: Air Volume Not Applicable

Analyte	ug/sample	mg/m³	RL (ug/sample)
Piperonyl butoxide	<0.50	NA	0.50
Pyrethrum	<0.50	NA	0.50

Sample ID: **082714-W01** Collected: 08/27/2014
Lab ID: 1424123011 Sampling Location: 082714-FOH Received: 08/28/2014

Method: NIOSH 5605 **Media:** Wipe **Analyzed:** 09/10/2014
Sampling Parameter: Area Not Provided

Analyte	ug/sample	RL (ug/sample)
Piperonyl butoxide	<0.50	0.50
Pyrethrum	<0.50	0.50

Sample ID: **082714-W02** Collected: 08/27/2014
Lab ID: 1424123012 Sampling Location: 082714-FOH Received: 08/28/2014

Method: NIOSH 5605 **Media:** Wipe **Analyzed:** 09/10/2014
Sampling Parameter: Area Not Provided

Analyte	ug/sample	RL (ug/sample)
Piperonyl butoxide	<0.50	0.50
Pyrethrum	<0.50	0.50

ANALYTICAL REPORT

Workorder: **34-1424123**
Client Project ID: 082714-FOH 082814
Purchase Order: 082714-FOH
Project Manager: Jessica Helland

Analytical Results

Sample ID: **082714-W03**
Lab ID: 1424123013
Sampling Location: 082714-FOH
Collected: 08/27/2014
Received: 08/28/2014

Method: NIOSH 5605 | **Media:** Wipe | **Sampling Parameter:** Area Not Provided | **Analyzed:** 09/10/2014

Analyte	ug/sample	RL (ug/sample)
Piperonyl butoxide	<0.50	0.50
Pyrethrum	<0.50	0.50

Sample ID: **082714-W04**
Lab ID: 1424123014
Sampling Location: 082714-FOH
Collected: 08/27/2014
Received: 08/28/2014

Method: NIOSH 5605 | **Media:** Wipe | **Sampling Parameter:** Area Not Provided | **Analyzed:** 09/10/2014

Analyte	ug/sample	RL (ug/sample)
Piperonyl butoxide	<0.50	0.50
Pyrethrum	<0.50	0.50

Sample ID: **082714-W05**
Lab ID: 1424123015
Sampling Location: 082714-FOH
Collected: 08/27/2014
Received: 08/28/2014

Method: NIOSH 5605 | **Media:** Wipe | **Sampling Parameter:** Area Not Provided | **Analyzed:** 09/10/2014

Analyte	ug/sample	RL (ug/sample)
Piperonyl butoxide	<0.50	0.50
Pyrethrum	<0.50	0.50

Sample ID: **082714-W06**
Lab ID: 1424123016
Sampling Location: 082714-FOH
Collected: 08/27/2014
Received: 08/28/2014

Method: NIOSH 5605 | **Media:** Wipe | **Sampling Parameter:** Area Not Provided | **Analyzed:** 09/10/2014

Analyte	ug/sample	RL (ug/sample)
Piperonyl butoxide	<0.50	0.50
Pyrethrum	<0.50	0.50

Sample ID: **082714-W07**
Lab ID: 1424123017
Sampling Location: 082714-FOH
Collected: 08/27/2014
Received: 08/28/2014

Method: NIOSH 5605 | **Media:** Wipe | **Sampling Parameter:** Area Not Provided | **Analyzed:** 09/10/2014

Analyte	ug/sample	RL (ug/sample)
Piperonyl butoxide	<0.50	0.50
Pyrethrum	<0.50	0.50

ANALYTICAL REPORT

Workorder: **34-1424123**
Client Project ID: 082714-FOH 082814
Purchase Order: 082714-FOH
Project Manager: Jessica Helland

Analytical Results

Sample ID: **082714-W08** Collected: 08/27/2014
Lab ID: 1424123018 Sampling Location: 082714-FOH Received: 08/28/2014

Method: NIOSH 5605 **Media:** Wipe **Analyzed:** 09/10/2014
Sampling Parameter: Area Not Provided

Analyte	ug/sample	RL (ug/sample)
Piperonyl butoxide	<0.50	0.50
Pyrethrum	<0.50	0.50

Sample ID: **082714-W09** Collected: 08/27/2014
Lab ID: 1424123019 Sampling Location: 082714-FOH Received: 08/28/2014

Method: NIOSH 5605 **Media:** Wipe **Analyzed:** 09/10/2014
Sampling Parameter: Area Not Provided

Analyte	ug/sample	RL (ug/sample)
Piperonyl butoxide	<0.50	0.50
Pyrethrum	<0.50	0.50

Sample ID: **082714-W10** Collected: 08/27/2014
Lab ID: 1424123020 Sampling Location: 082714-FOH Received: 08/28/2014

Method: NIOSH 5605 **Media:** Wipe **Analyzed:** 09/10/2014
Sampling Parameter: Area Not Applicable

Analyte	ug/sample	RL (ug/sample)
Piperonyl butoxide	<0.50	0.50
Pyrethrum	<0.50	0.50

Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Method	Analyst	Peer Review
NIOSH 5605	/S/ Pooreun Lim 09/11/2014 11:09	/S/ Thomas J. Masoian 09/11/2014 12:09

Laboratory Contact Information

ALS Environmental
960 W Levoy Drive
Salt Lake City, Utah 84123

Phone: (801) 266-7700
Email: alslt.lab@ALSGlobal.com
Web: www.alsslc.com

ANALYTICAL REPORT

Workorder: **34-1424123**
Client Project ID: 082714-FOH 082814
Purchase Order: 082714-FOH
Project Manager: Jessica Helland

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted.
Samples have not been blank corrected unless otherwise noted.
This test report shall not be reproduced, except in full, without written approval of ALS.

ALS provides professional analytical services for all samples submitted. ALS is not in a position to interpret the data and assumes no responsibility for the quality of the samples submitted.

All quality control samples processed with the samples in this report yielded acceptable results unless otherwise noted.

ALS is accredited for specific fields of testing (scopes) in the following testing sectors. The quality system implemented at ALS conforms to accreditation requirements and is applied to all analytical testing performed by ALS. The following table lists testing sector, accreditation body, accreditation number and website. Please contact these accrediting bodies or your ALS project manager for the current scope of accreditation that applies to your analytical testing.

Testing Sector	Accreditation Body (Standard)	Certificate Number	Website
Environmental	ACLASS (DoD ELAP)	ADE-1420	http://www.aclasscorp.com
	Utah (NELAC)	DATA1	http://health.utah.gov/lab/labimp/
	Nevada	UT00009	http://ndep.nv.gov/bsdw/labservice.htm
	Oklahoma	UT00009	http://www.deq.state.ok.us/CSDnew/
	Iowa	IA# 376	http://www.iowadnr.gov/InsideDNR/RegulatoryWater.aspx
	Florida (TNI)	E871067	http://www.dep.state.fl.us/labs/bars/sas/qa/
	Texas (TNI)	T104704456-11-1	http://www.tceq.texas.gov/field/qa/lab_accred_certif.html
Industrial Hygiene	AIHA (ISO 17025 & AIHA IHLAP/ELLAP)	101574	http://www.aihaaccreditedlabs.org
Lead Testing:			
CPSC	ACLASS (ISO 17025, CPSC)	ADE-1420	http://www.aclasscorp.com
Soil, Dust, Paint ,Air	AIHA (ISO 17025, AIHA ELLAP and NLLAP)	101574	http://www.aihaaccreditedlabs.org
Dietary Supplements	ACLASS (ISO 17025)	ADE-1420	http://www.aclasscorp.com

Definitions

LOD = Limit of Detection = MDL = Method Detection Limit, A statistical estimate of method/media/instrument sensitivity.
LOQ = Limit of Quantitation = RL = Reporting Limit, A verified value of method/media/instrument sensitivity.
ND = Not Detected, Testing result not detected above the LOD or LOQ.
NA = Not Applicable.
** No result could be reported, see sample comments for details.
< This testing result is less than the numerical value.
( ) This testing result is between the LOD and LOQ and has higher analytical uncertainty than values at or above the LOQ.

1424123

ALS Environmental

Field Chain-of-Custody Record

1424123

Page _____ of _____

Client Name & Address	Project No.	Project Name	Sampler (Signature)
Tidewater, Inc. 6625 Selrick Drive, Ste A Elkridge, MD 21075	082714 - FOH	082714 - FOH	
Phone: 410-567-6948			
FAX: 410-997-8713			
e-mail: jason.jonathan@tidewater.net			

Field Sample Number	Site ID	Date	Time	Volume / Depth	ALS Sample Number	Preservation Code	Sample Matrix Code	Sample for Matrix QC	Analyses Requested: Pyrethrins	Analyses Requested: Piperonyl Butoxide	No. of Containers	Remarks
082714-A02	Rm 5742	8/27/14	123 min	123 L			F		X	X		NIOSH 5605 Method
082714-A04	Rm 5720		126 min	126 L					X	X		
082714-A03	Rm 5741		128 min	128 L					X	X		
082714-A04	Rm 5771		129 min	129 L					X	X		
082714-A05	Rm 5780		129 min	129 L					X	X		
082714-A06	Rm 5782		128 min	128 L					X	X		
082714-A07	Rm 5500		134 min	134 L					X	X		
082714-A08	Rm 5460		135 min	135 L					X	X		
082714-A09	Rm 4940		137 min	137 L					X	X		
082714-A20	Field Blank	"	N/A	N/A			W		X	X		

Possible Hazard Identification
- ☑ Non-Hazard
- ☐ Skin Irritant
- ☐ Rad
- ☐ Flammable
- ☐ Poison
- ☐ Unknown

Sample Disposal
- ☐ Return to Client
- ☑ Disposal by Lab
- ☐ Archive for _____ Months

(fees may be assessed if samples are retained longer than 3 months)

Requested Turn Around Time
- ☐ 2 Days (Rush)
- ☒ 7 Days (Rush)
- ☐ 21 Days
- ☐ 3 Days (Rush)
- ☐ 14 Days
- ☑ Other

(Rush = email data by COB on day due. Surcharges assessed.)

Carrier/Airbill #:

4 Day TAT

Relinquished by: (Signature)	Received by: (Signature)	Date	Time
		08/28/14	1022
Relinquished by: (Signature)	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Received by: (Signature)	Date	Time

Shipped to:

ALS Environmental
960 West LeVoy Drive
Salt Lake City, UT 84123
Phone: (800) 356-9135
Phone: (801) 266-7700
FAX: (801) 268-9992

White - Laboratory Copy *Yellow - Client Copy*

13386/12

ALS Environmental

Field Chain-of-Custody Record

Page 1 of ____

Client Name & Address: Tetra Tech Inc. 6645 Selma Drive, Suite A Elkridge, MD 21075	Project No.: 082714 - FOH
	Project Name: 082714 - FOH
Phone: 410-567-6048	
FAX: 410 - 997 - 8713	Sampler: *(Signature)*
e-mail: Jason.Jonathan@tetratech.com	

Field Sample Number	Site ID	Date	Time	~~Depth~~	ALS Sample Number	Preservation Code	Sample Matrix Code	Sample for Matrix QC	Analyses Requested: Pyrethrins	Analyses Requested: Piperonyl Butoxide	No. of Containers	Remarks
082714 - W01	RM 5722	8/27/14	1426	Liner		N	G		X	X		NIOSH 5605 Method
082714 - W02	RM 5720		1428						X	X		
082714 - W03	RM 5741		1430						X	X		
082714 - W04	RM 5771		1433						X	X		
082714 - W05	RM 5780		1434						X	X		
082714 - W06	RM 5782		1436						X	X		
082714 - W07	RM 5800		1438						X	X		
082714 - W08	RM 5400		1441						X	X		
082714 - W09	RM 5840	"	1445	"		"	"		X	X		
082714 - W10	Field Blank	—	—	—		N	U		X	X		

Matrix Codes: W) Water, L) Liquid, S) Soil, C) Solid, B) Bulk, F) Filter, G) Wipe, M) Media

Preservation Codes: 1) Cool to 4°C; 2) HCl to pH<2, 4°C; 3) H_2SO_4 to pH<2, 4°C; 4) HNO_3 to pH<2, 4°C; 5) NaOH to pH>12, 4°C; 6) ZnOAc/NaOH to pH>9, 4°C

Possible Hazard Identification
☑ Non-Hazard ☐ Skin Irritant ☐ Rad
☐ Flammable ☐ Poison ☐ Unknown

Sample Disposal
☐ Return to Client ☐ Archive for ____ Months
☑ Disposal by Lab
(fees may be assessed if samples are retained longer than 3 months)

Requested Turn Around Time
☐ 2 Days (Rush) ☑ 7 Days (Rush) ☐ 21 Days
☐ 3 Days (Rush) ☐ 14 Days ☑ Other
(Rush = email data by COB on day due. Surcharges assessed.)

Carrier/Airbill #: 4 Day TAT

Relinquished by: *(Signature)*	Received by: *(Signature)*	Date	Time
		08/28/14	1022
Relinquished by: *(Signature)*	Received by: *(Signature)*	Date	Time
Relinquished by: *(Signature)*	Received by: *(Signature)*	Date	Time

Shipped to:
ALS Environmental
960 West LeVoy Drive
Salt Lake City, UT 84123
Phone: (800) 356-9135
Phone: (801) 266-7700
FAX: (801) 268-9992

White - Laboratory Copy *Yellow - Client Copy*

Schultz Company
P. O. Box 4408
Bridgeton, MO 63044-0406

Material Safety Data Sheet

Complies with OSHA's Hazard Communication Standard, 29 CFR 1910.1200

Hazardous Material Identification System – (HMIS)	
HEALTH – 1	REACTIVITY – 0
FLAMMABILITY – 0	PERSONAL – Rubber gloves

I Trade Name: Garden Safe® Brand Houseplant & Garden Insect Killer

Product Type: Liquid ready-to-use insecticide

Product Item Number: HG-10422X-5 **Formula Code Number:** 21-0522

EPA Registration Number	Manufacturer	Emergency Telephone Numbers
478-125-39609	Chemsico Division of United Industries Corporation 8494 Chapin Industrial Drive St. Louis, MO 63114	For Chemical Emergency: 1-800-633-2873 For Information: 1-800-257-3379 Prepared by: C. A. Duckworth Date Prepared: October 5, 2007

II Hazards Ingredient/Identity Information

Chemical	%	OSHA PEL	ACGIH TLV
Pyrethrins CAS# 8003-34-7	0.02	NA	5 mg/m³
Piperonyl butoxide CAS# 51-03-6	0.20	NA	NA

III Physical and Chemical Characteristics

Appearance & Odor:	Spray mist with clear wet film.
Boiling Point:	215° F
Melting Point:	NA
Vapor Pressure:	NA
Specific Gravity:	1.0 (H_2O = 1)
Vapor Density:	Greater than 1 (Air = 1)
% Volatile (by vol.):	99%
Solubility in Water:	Greater than 99%
Evaporation Rate:	Less than 1 (Butyl Acetate = 1)

IV Fire and Explosive Hazards Data

Flash Point:	NA – Will not burn
Flammable Limits:	NA
Autoignition Temperature:	NA
Fire Extinguishing Media:	Water fog, Carbon dioxide, Dry chemical
Decomposition Temperature:	NA
Special Fire-Fighting Procedures:	Use procedures for elimination of original fire source.
Unusual Fire & Explosion Hazards:	None. Also see Section V.

V Reactivity Data

Stability:	Stable
Polymerization:	Will not occur
Conditions to Avoid:	None
Incompatible Materials:	NA
Hazardous Decomposition or Byproducts:	NA

VI Health Hazard Data

Ingestion (Swallowing): Harmful if swallowed. ***First Aid:*** Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a Poison Control Center or doctor. Never give anything by mouth to an unconscious person. Skin Contact: Harmful if absorbed through skin. ***First Aid:*** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a Poison Control Center or doctor for treatment advice. Eye Contact: Avoid contact with eyes. ***First Aid:*** Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses if present after the first five minutes then continue rinsing eye. **Inhalation Toxicity:** If inhaled move person to fresh air. If person is not breathing call 911 or an ambulance then give artificial respiration, preferably mouth-to-mouth.
Avoid breathing vapors.

Special Notes: None
Health conditions Aggravated by Exposure: None under normal use
Ingredients listed by NTP, OSHA, or IARC as Carcinogens or Potential Carcinogens: None

VII Precautions for Safe Handling and Use

Steps to be Taken in Case Material is Released or Spilled:
Avoid contact with liquid. Soak up with absorbent material.

Waste Disposal:
Do not reuse container. Place in trash or offer for recycling if available. If partially filled: Call your local solid waste agency for disposal instructions.

Handling & Storage Precautions:
Do not store where temperatures can exceed 54° C/130° F.

VIII Control Measures

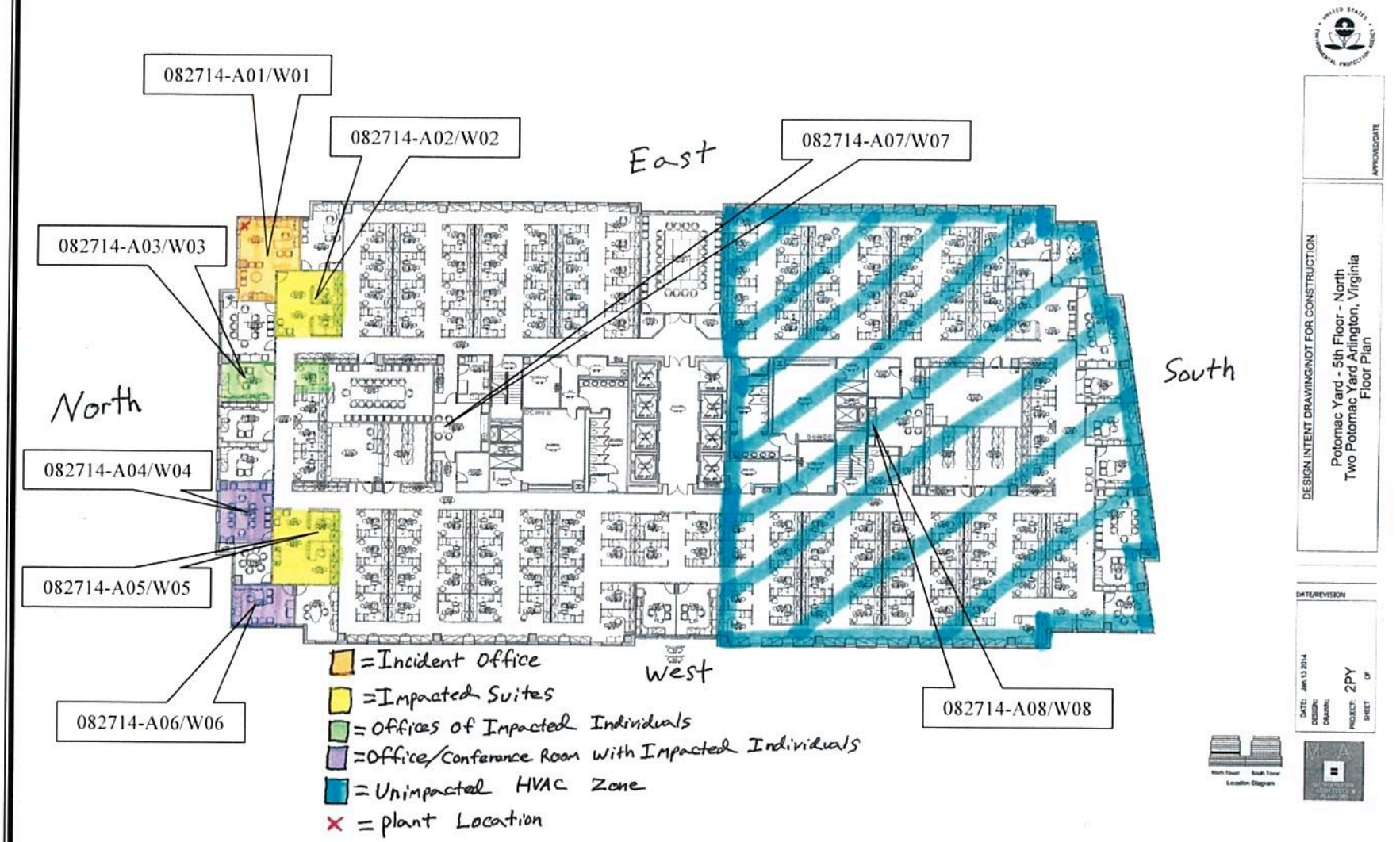
Read and follow label directions. They are your best guide to using this product effectively, and give necessary safety precautions to protect your health.

IX Transportation Data

DOT: Not Regulated by DOT (limited quantity exception)
IMDG: Not Regulated by IMDG (limited quantity exception)
IATA: Not Regulated by IATA (limited quantity exception)

Attachment B

Sample Locations Diagram



TIDEWATER INC	**Attachment B – Figure 1** **EPA Potomac Yard (North) – 5th Floor** **2733 Crystal Drive** **Arlington, VA 22202**	Scale: N/A Project #: 5379-005 Date: August 27, 2014	**General Notes** 082714-A09/W09 collected in Conference Room 4840 (un-impacted Area) on the 4th Floor. Ob2714-A10/W10 are Field Blank samples.